

### LLNL Library of the Future Overview

(http://www.llnl.gov/llnl\_only/tid/lof/about-LoF/LoF-overview/LoF.html)

Welcome to the LLNL Library of the Future initiative overview presentation. The following suggestions may help you get more out of the presentation:

- The first line ("headline") of each page of the presentation links to the next page in the presentation. Click on the headlines to advance through the presentation in a linear fashion.
- To try an example, click on the word "example", then follow the directions given.

Click here to begin the presentation.

#### For assistance

Last updated on March 27, 1995, by Tom Brengle If you have technical questions about this page, contact: <a href="mailto:brengle1@llnl.gov">brengle1@llnl.gov</a> -- Tom Brengle



# An Overview of LLNL's Library of the Future Initiative

Rev. 3/27/95

### **LLNL Library of the Future**

- The Library of the Future initiative
- Near term objectives
- Who else is doing this?
- What will this look like?
- How are we doing it?
- Benefits vs. Cost? (will be provided later)
- Futures
- Acknowledgements

### The Library of the Future initiative

- A little history
- Genesis of the initiative
- Overall goals of the initiative
- Expected benefits
- The FY94 project

### A little history

- A few years ago, the Lab's Library Advisory Committee chartered a technology subcommittee to investigate opportunities to utilize technology to improve the accessibility of information resources for Lab information workers
- This subcommittee also recognized early on the value of Lab-owned information resources to information workers outside the Lab
- The subcommittee and Library staff did extensive research, and pursued a number of pilot projects

### Genesis of the initiative

- Ideas generated through these efforts became known collectively as the "Library of the Future", or LoF
- An outcome of this process, in part, was a vision for the LoF:

"A library in which an end user can type 'Tell me about...' and get, on the desktop, the information sought, rapidly, seamlessly, layer by layer, from sources inside and outside the Laboratory - or the user can get an information specialist to do it."

### Overall goals of the initiative

- To make unclassified unlimited "public domain" Lab information accessible electronically to Lab employees and other Internet users
- To make other limited access information available electronically to Lab employees as appropriate
- To make a major contribution to development of the Information Superhighway / National Information Infrastructure

### **Expected benefits**

- Lab reports available sooner and to a wider audience
- Reduce the number of paper copies printed and stored
- Lab work available world-wide -> more visibility for Lab and its scientists
- Reports and papers electronically searchable
- Reports much more accessible to Lab users (not kept in classified building)
- Part of distribution can be done electronically -> cuts printing costs
- Saves storage space and costs

# The FY94 project

- \$200K of "one-time" funds were allocated in mid-March
  - o intended to support LoF start-up efforts to be completed by September 30
  - o focus is on what's do-able in that timeframe
- A project plan to pursue specific objectives was first released in May (current version is dated July 6)

# Near term objectives

- October 1 objectives
- February 1 objective

### October 1 objectives

- Establish necessary "business" processes within TID to support submission of new documents in electronic form
  - o electronic review and release
  - o document conversion
  - o print-on-demand
- Establish the "electronic library"
  - o "repository" for electronic documents
  - o integrated user interface for browsing and searching
  - o automated collection management tools

(con't.)

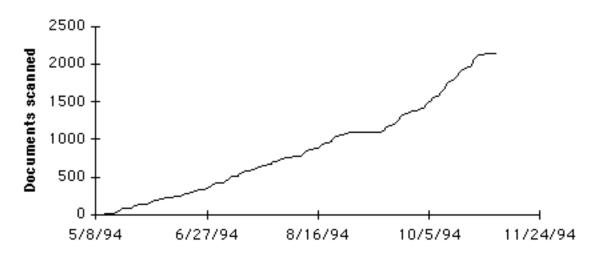
### October 1 objectives (con't.)

- Begin conversion of the existing reports collection
  - o about 77,000 reports and preprints need to be scanned and OCRed
  - o about 3000 documents have been scanned and are awaiting conversion to Internet accessible form (more detail)
  - o we are very interested in copying available electronic versions of these documents
- Handle TID-produced documents electronically
- Electronically handle documents from early supporters

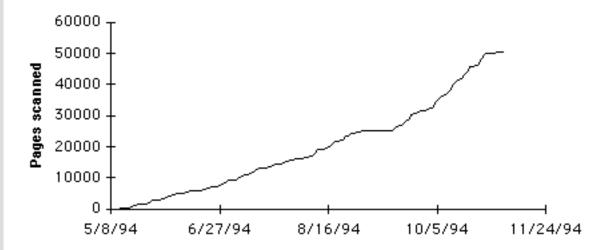
### LLNL Library of the Future Statistics

LLNL is currently in the process of scanning the documents in its technical reports collection, converting them to PDF, and making them available through the LLNL web server. There are approximately 77,000 reports in the collection.

### **Progress of Document Scanning**



### **Progress of Document Scanning**



For assistance

# February 1 objective

• Complete implementation of infrastructure and processes to handle new documents in electronic form

# Who else is doing this?

- Many other organizations are pursuing a similar path
- There are many different strategies

# Many other organizations are pursuing a similar path

- Government
  - o Argonne National Laboratory
  - **o** Los Alamos National Laboratory
  - o Internal Revenue Service
- Academia
  - o many universities
- Industry
  - Apple Computer
  - o Lockheed

### There are many different strategies

• We think we have chosen one with a lot of "bang for the buck"

### What will this look like?

- The Library patron's view
- The electronic document submitter's view
- The paper document submitter's view
- For TID-produced documents

### The Library patron's view

- Macintosh, Windows, or Unix computers may be used
- "Point & click" interface will allow navigation through collection
- For searching,
  - o a simple keyword search interface will be provided initially
  - o several more sophisticated searching tools will be added later
- On patron's computer, he or she may:
  - o view documents (original "look & feel" will be preserved)
  - o print documents on a local printer, or order printing through TID's Print Plant
  - o download documents
- Note: TCP/IP access to Open Labnet will be required

### The electronic document submitter's view

- If document is already in desired electronic format:
  - o customer submits electronic file(s) to Publication Services
  - o Publication Services handles review and release
  - o Publication Services notifies customer when releases are obtained
  - o Publication Services forwards electronic file(s) to Library
  - o customer can
    - □ send document to Print Plant, or
    - □ have Print Plant access electronic file from Library

(con't.)

### The electronic document submitter's view (con't.)

- If document is in an alternate electronic format:
  - o customer submits electronic file(s) to Publication Services
  - o Publication Services does conversion or sends file(s) to Electronic Services for conversion
  - o after conversion, the process continues with review and release as before

### The paper document submitter's view

- Customer submits paper copy to Publication Services
- Publication Services handles review and release
- Publication Services notifies customer when releases are obtained
- Publication Services offers several options for providing an electronic version
  - o provide electronic version in desired format within a reasonable time, or
  - o provide electronic version in alternate format within a reasonable time, or
  - o have TID scan in the paper version
- Publication Services forwards electronic file(s) to Library

(con't.)

# The paper document submitter's view (con't.)

• After February 1, Publication Services will accept documents in electronic form

# For TID-produced documents

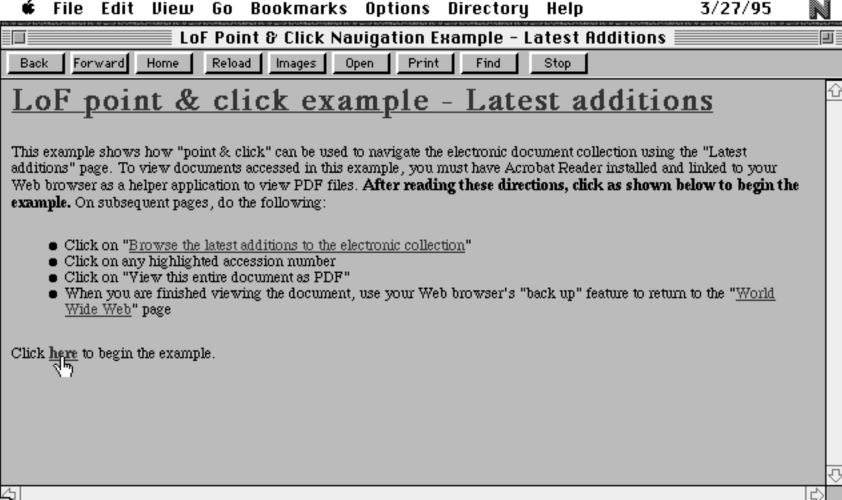
• TID will create the electronic file(s) for TID-developed documents after the final page layouts are prepared

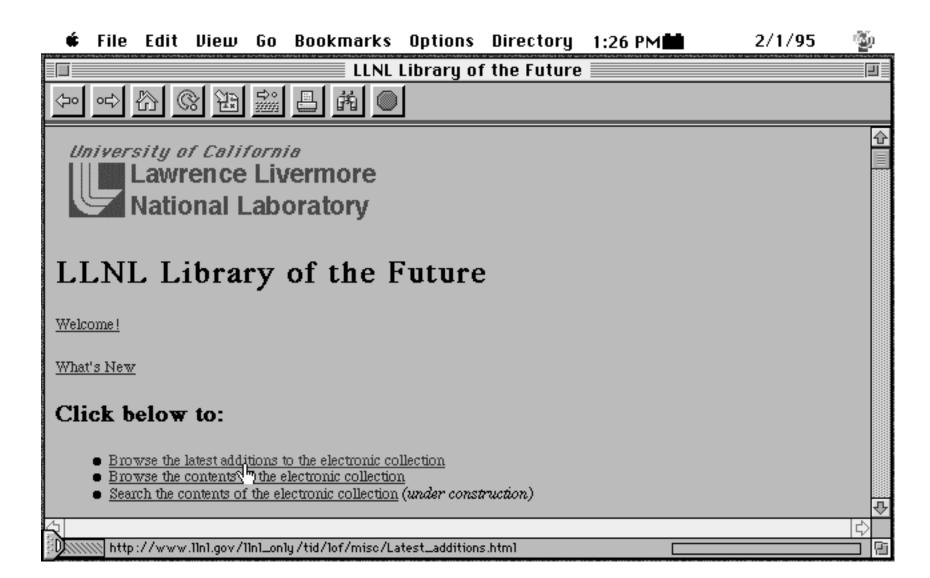
### How are we doing it?

- World Wide Web (WWW)
- Adobe Acrobat
- Scanning/OCR for input of paper documents
- Print-on-demand through TID Print Plant
- Institutional server

### World Wide Web (WWW)

- Supports "point & click" navigation
  - o ("Latest additions" example)
  - o ("Browse by date" example)
- Recent versions support "forms" for information entry
  - o can be used for entry of search criteria (example)
- Uses "helper" applications to handle various multimedia types
- Patrons can use any WWW client software package, including Mosaic
  - o Mosaic is available for Macintosh, Windows and Unix
  - o Mosaic is freeware
  - o others, like MacWeb from MCC, are becoming available
- The HyperText Markup Language (HTML) has limited ability to format display of documents









### Latest Additions to the LLNL Library of the Future

Here are the 67 documents most recently added to the electronic collection. To access, click on the highlighted accession number following the citation. This page was updated on Wednesday, February 1, 1995 at 10:41 PST.

"Magnetic and high-pressure effects on the elastic and structural properties of iron," Soderlind, P; Moriarty, J A. UCRL-JC-119524-ABS, December 3, 1994. (900052)

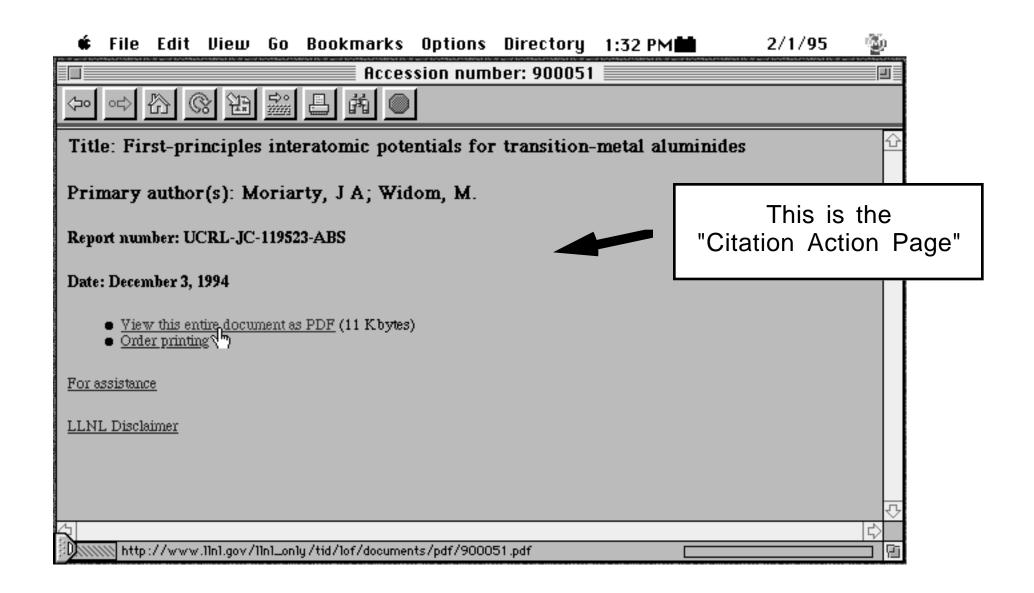
"First-principles interatomic potentials for transition-metal aluminides," Moriarty, J.A.; Widom, M. UCRL-JC-119523-ABS, December 3, 1994. (900051)

"Atomic and electronic structure of cubic and orthorhombic PbF2," Klepeis, JE; Lorenzana, HE; Van Schilfgaarde, M. UCRL-JC-119518-ABS, December 3, 1994. (900050).

"Linear response calculations of Tc," Barbee, T.W. UCRL-JC-119516-ABS, December 3, 1994. (900049).

"Measurement of the energy scattering time in GaAs and low-temperature grown GaAs using the probe-probe method," Bello, A.F. Brskine, D.J. Fochs, S.N. Perry, M.D. Emanuel, M.A. Ditmire, T.R. Radousky, H.B. Mariella, R.P.

http://www.llnl.gov/llnl\_only/tid/lof/documents/citation-action-page/900051.html



UCRL-JC-119523 abs

### First-principles Interatomic Potentials for Transition-Metal Aluminides

J.A. Moriarty Lawrence Livermore National Laboratory

> M. Widom Carnegie Melon University

The first-principles generalized pseudopotential theory (GPT) of transition-metal (TM) interatomic potentials  $^1$  has been successfully extended to binary systems, including the aluminides TM  $_{\mathcal{X}}$ Al  $_{\mathcal{F}_{\mathcal{X}}}$  In general, the total-energy functional involves a volume term, central-force pair potentials, and angular-force many body potentials, which are both volume and concentration dependent and include all sp-d and d-d interactions within LDA quantum mechanics. Current

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The first-principles generalized pseudopotential theory (GPT) of transition-metal (TM) interatomic potentials  $^1$  has been successfully extended to binary systems, including the aluminides  $TM_X$  Al  $_{1-X}$ . In general, the total-energy functional involves a volume term, central-force pair potentials, and angular-force manybody potentials, which are both volume and concentration dependent and include all sp-d and d-d interactions within LDA quantum mechanics. Current applications have emphasized the structural energetics of aluminum-rich 3d intermetallics, which appear to be well described at the pair-potential level, without angular forces. A case of special interest is the phase diagram of  $Co_X$  Al  $_{1-X}$  which has recently been studied via model pair potentials  $^2$  and  $^2$  and  $^2$  initio electronic-structure calculations. Preliminary GPT results reverse the incorrect prediction of a stable  $Al_{12}W$  structure by the model potentials and also show good agreement with the electronic-structure results. This and other available applications will be discussed as time permits.

Work performed under the auspices of the U.S. Department of Energy by LLNL under contract no. W-7405-ENG-48.

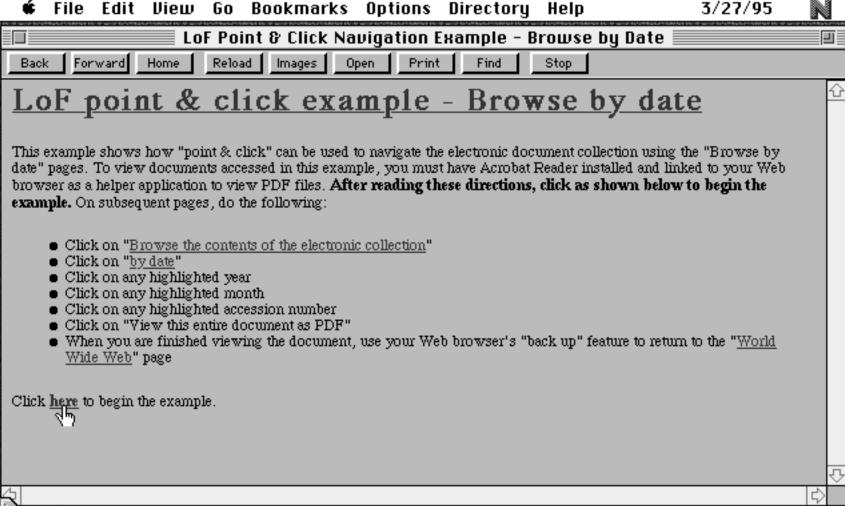
<sup>&</sup>lt;sup>1</sup>J.A. Moriarty, Phys. Rev. B **38**, 3199 (1988).

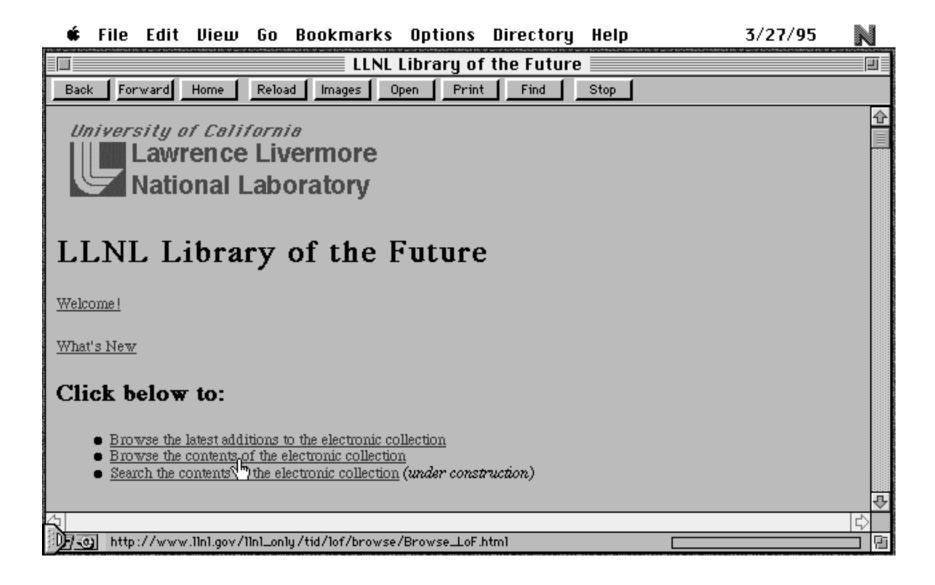
<sup>&</sup>lt;sup>2</sup>R. Phillips, et. al, Phys. Rev. B **49**, 9322 (1994).

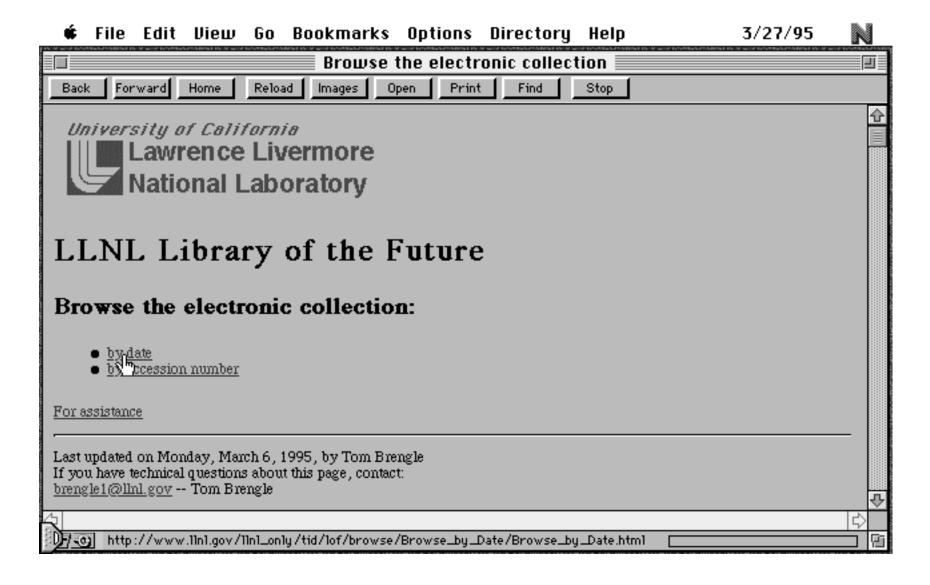
<sup>&</sup>lt;sup>3</sup>S. ögüt and K.M. Rabe, Phys. Rev. B **50**, 2075 (1994).

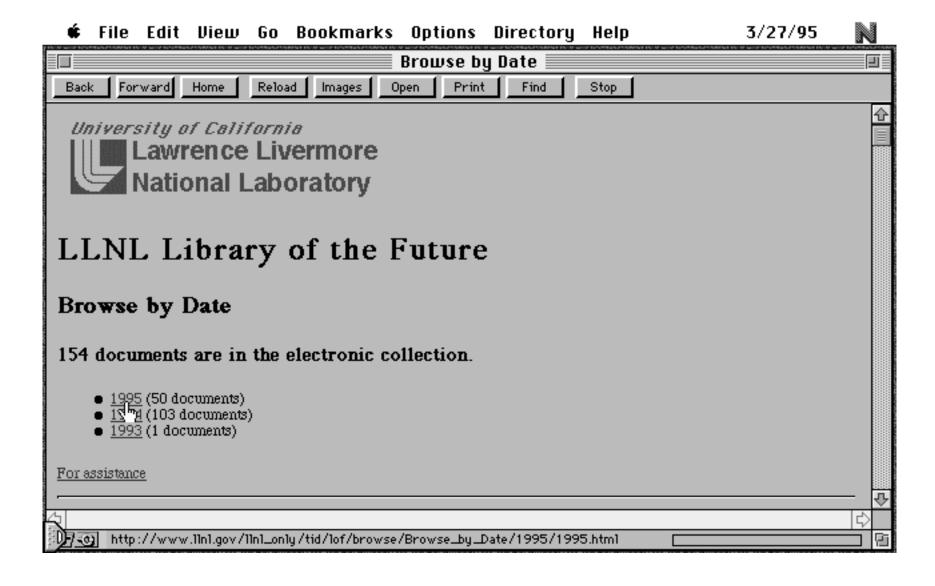
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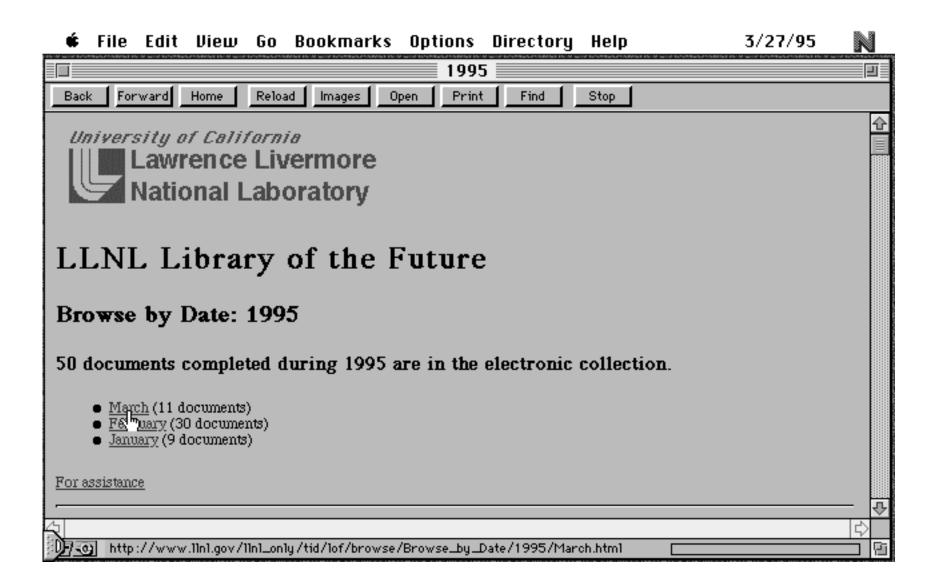












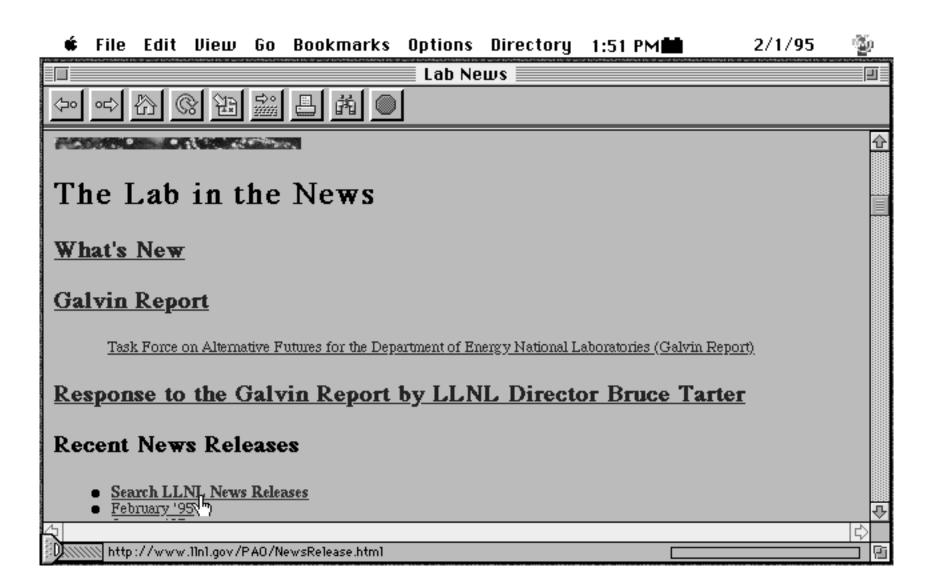
"Artificial neural network prediction of groundwater remediation; training evolution and optimization benchmarking," Rogers,

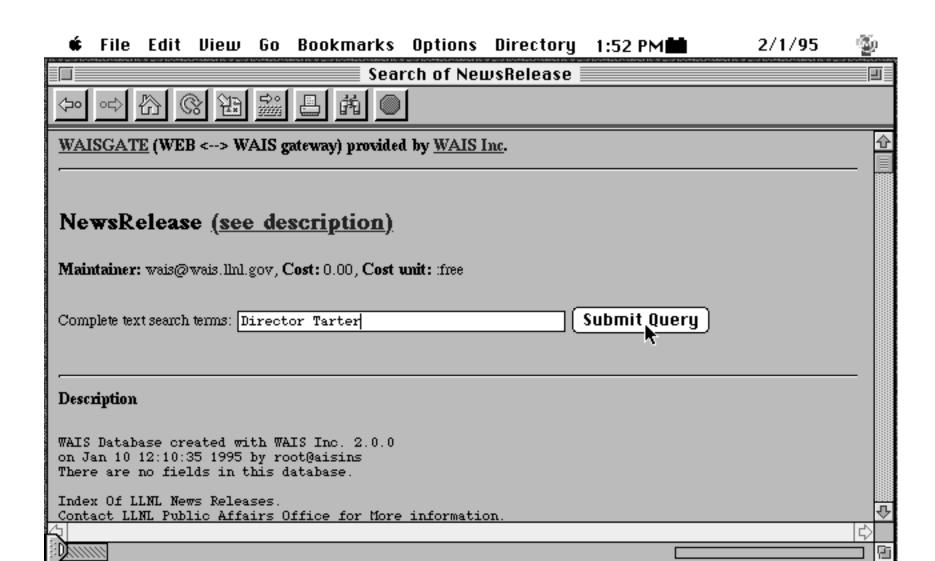
measurements," Grant, K. E; Kuczmarski, T. UCRL-JC-120419-ABS, 1 pg., March 1, 1995. (900111)

http://www.llnl.gov/llnl\_only/tid/lof/documents/citation-action-page/900111.html

L; Johnson, V. UCRL-JC-120415-ABS, 1 pg., March 1, 1995. (900110)



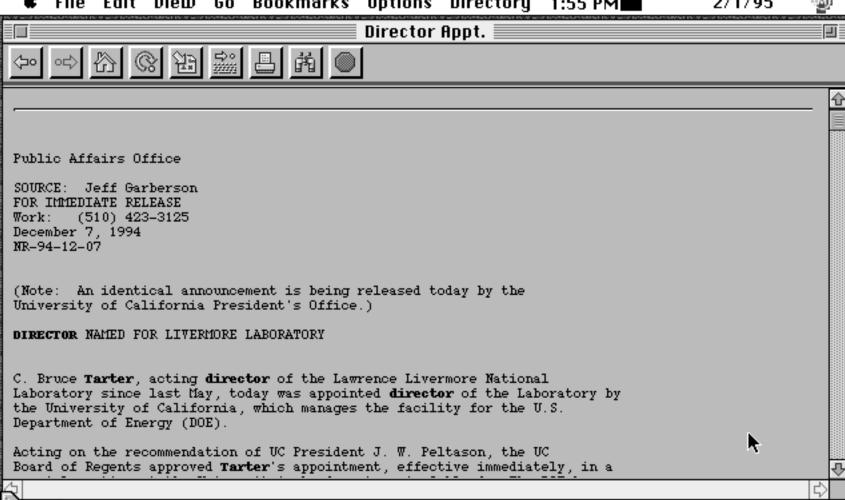




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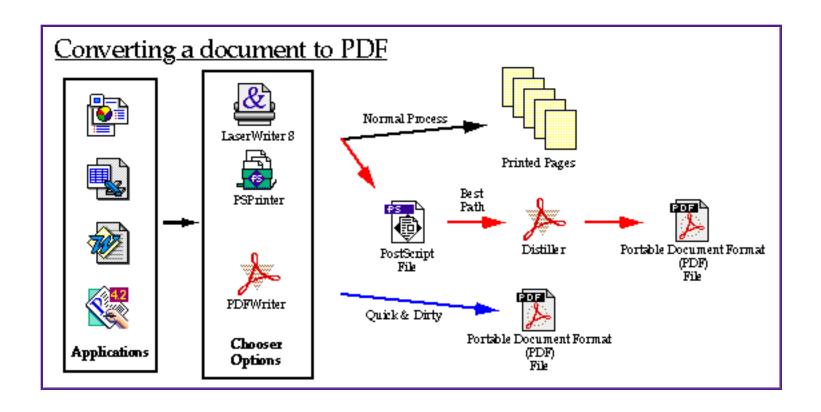
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#### **Adobe Acrobat**

- Acrobat Portable Document Format (PDF)
  - o preserves the original "look and feel" of a document
  - o eliminates the font portability problem
  - o is "network friendly"
  - o can compress text and images
  - o is portable across Macintosh, DOS, Windows, and Unix
- Acrobat Reader is available for Macintosh, DOS, Windows and Unix
- Mosaic can use Acrobat Reader as one of its "helper" applications
- Printing of PDF documents at the patron's local PostScript printer is supported by Acrobat Reader
- Acrobat Reader is freeware

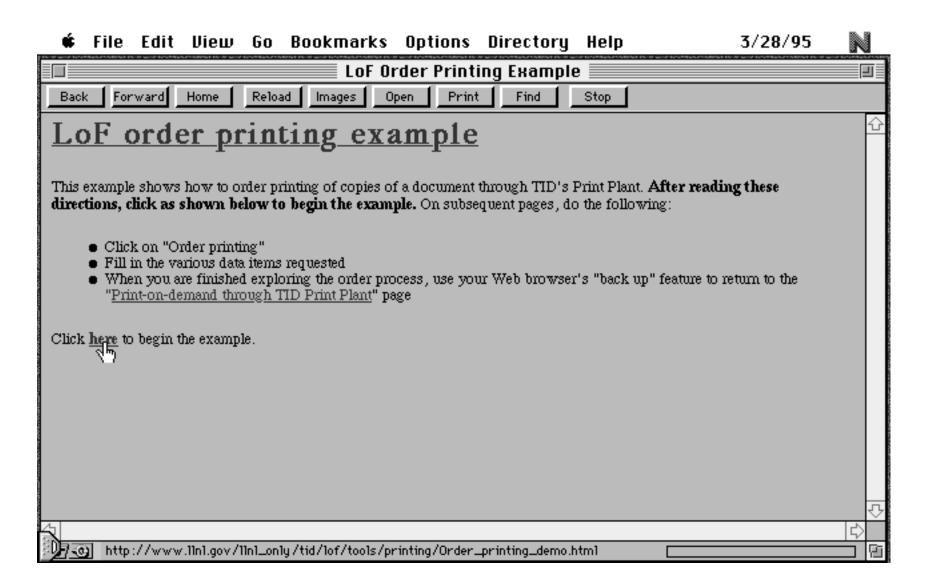


# Scanning/OCR for input of paper documents

- The Library is
  - o scanning the paper documents at 300 dpi
  - o storing the page images in TIFF (Modified Group 3) format
  - o using OCR to recover the text from the images
  - o saving the text in ASCII format
- An automatic process is being developed to convert TIFF images into Acrobat PDF

### Print-on-demand through TID Print Plant

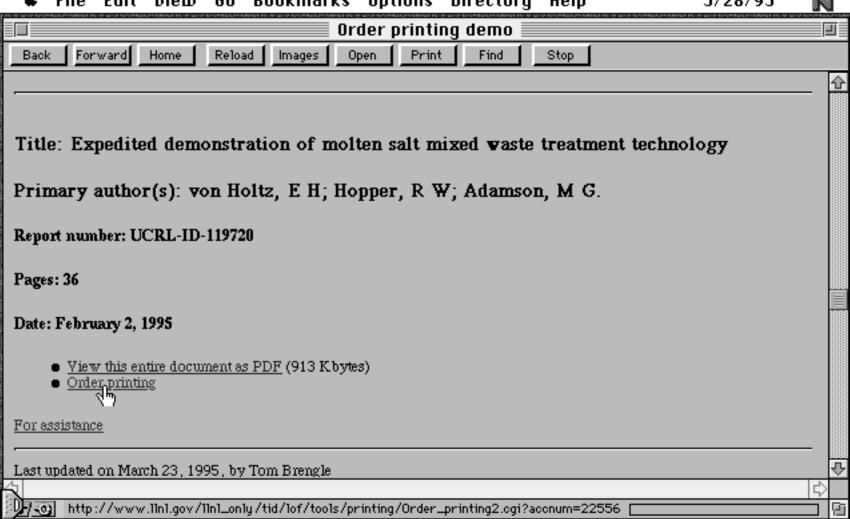
- An on-line form is available to electronically order printing through the Print Plant(example)
- The form automatically
  - o fills in patron information
  - o verifies that cost account is open
  - o provides cost estimate
- A patron can use this service to obtain
  - o a large number of copies
  - o faster turnaround than local resources may allow
- Most printing options are preset
- The Xerox DocuTech (135 pages per minute) is used for printing
  - o basic cost is 5.4 cents per unit (one single sided page or one side of a two sided page)
  - o \$15 minimum order

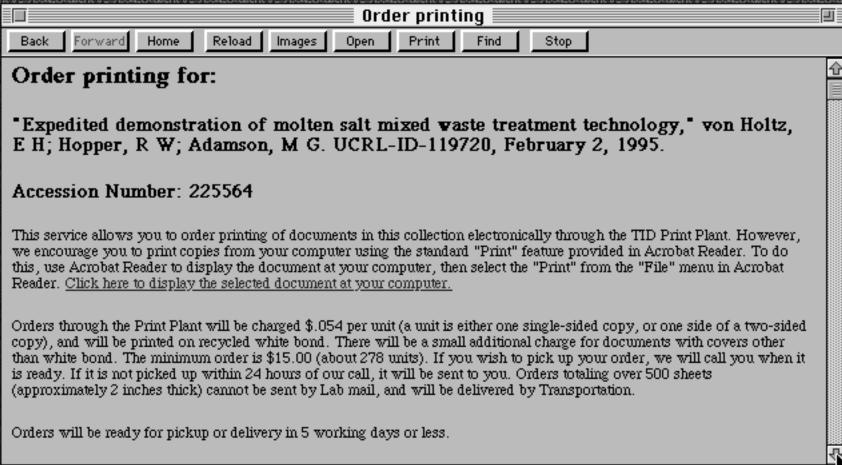


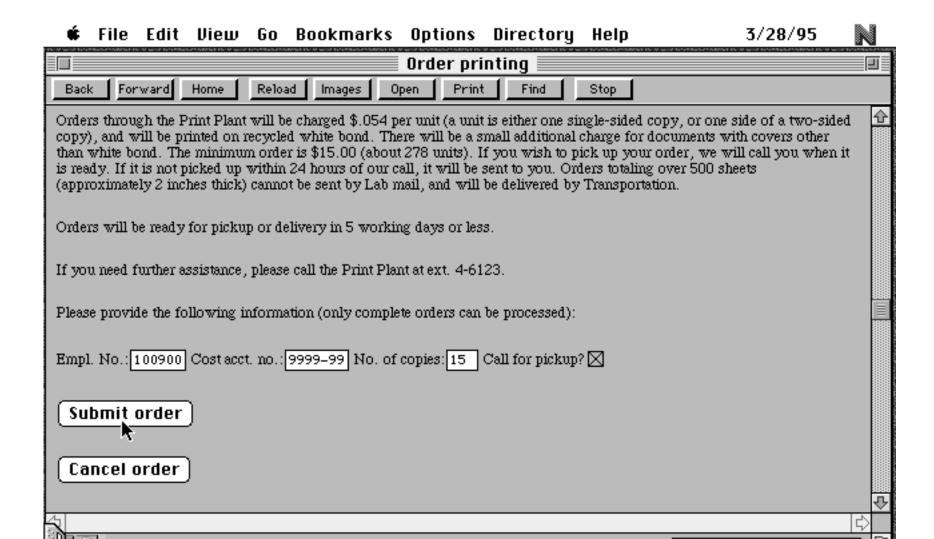
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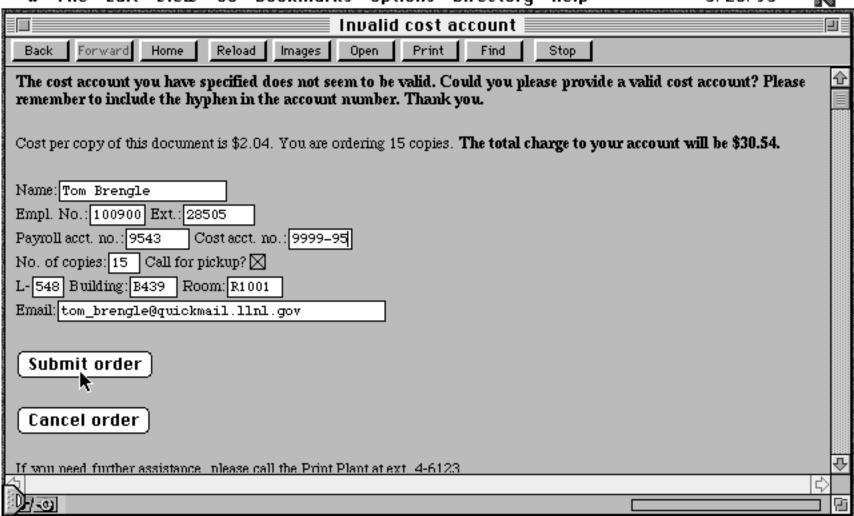


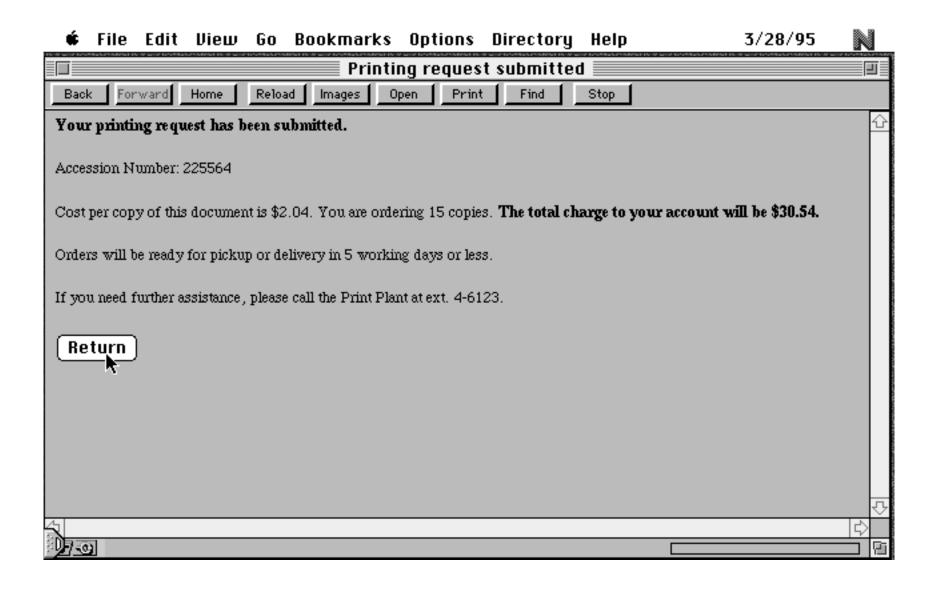




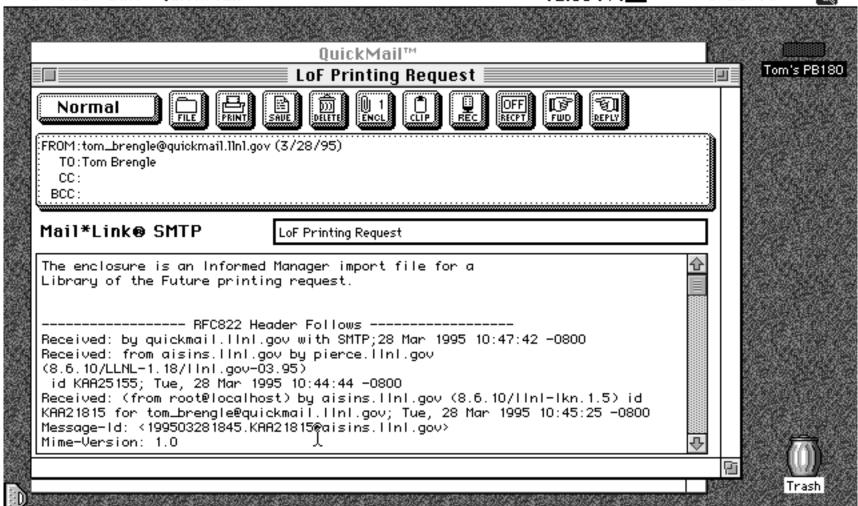
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## **Institutional server**

- Controlled physical environment
- Automatic backup of information
- Limited access to change information
- Separate information access partitions
  - o Publication Services only -> review & release
  - o LLNL only
  - o Open Internet

# **Futures**

- Development of new information formats and storage media
- Assurance of the authenticity and integrity of electronic information
- Routine incorporation of digital multimedia information forms
- Probable disappearance of "batched" information
- Probable transformation of libraries into dynamic electronic information hubs

### **Acknowledgements**

- Library Technology Subcommittee
  - o Judy Barnett, Dan Calef, Jeff Fernandez, Dave Grubb, Isom Harrison, Dennis Lai, Howard Lentzner, Ted Michels, Amal Moulik, Chuck Pomernacki, Tom Slezak
- Electronic Input Team
  - o Jerry Alfaro, Carol Duncan, Dennis Elchesen, Ron Ford, Barbara Ingram, Candy Justin, Gene Ledbetter, Peter Link, Bob Lormand, Ron Natali, Mary Nijhuis, Candy Wolfe
- Architecture Team
  - o Hilary Burton, Dennis Elchesen, Jerry Grow, Barbara Ingram, Dennis Lai, Bob Lormand, Craig Ross

(con't.)

## Acknowledgements (con't.)

- Document Scanning
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- PDF support
  - o Rita Anderson, Jan Brosius, Paul Burke, Sharon Kerst, John Schuster, Jim Smith, Weiyan Wu
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  - o Paul Burke, Lee Neely, Larry Snyder
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  - o Tom Smith
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